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Attendees	Jeff Brillhart, NHDOT John Butler, NHDOT Tony Grande, VHB Howard Muise, VHB Bruce Tasker, VHB Marty Kennedy, VHB SEE ATTACHED LIST	Date / Time:	December 7, 2000, 7:00 PM
		Project No.:	Salem – Manchester 50885 10418-C
Place:	West Running Brook Middle School, Derry NH	Re:	Public Officials meeting # 9–I-93
		Notes taken by:	Bruce Tasker, Reviewed By Jeff Brillhart.

INTRODUCTION

Jeff Brillhart made introductions and noted that the meeting was an opportunity to update officials and the public on the project status, issues and direction.

PROJECT OVERVIEW

Jeff provided an overview of what efforts have occurred since the last series of meetings that were held in each of the five communities along the section of I-93 beginning back in March.

1. The Department completed a Scoping Report in May and is working to complete a Rationale Report in mid-January. Both reports are preludes to the Draft Environmental Impact Statement (DEIS) due to be available a year from now. The Scoping Report provides an understanding of the project purpose and need, an overview of environmental resources and existing conditions and a discussion of project issues and alternatives to be considered.
   The Rationale Report provides a discussion of the broad range of alternatives and options, and what alternatives or options should be carried forward for more detailed study, and what alternatives or options should be dropped from further study.
   The Environmental Impact Statement will synthesize the data from these early reports and discuss project alternatives and project impacts in more detail

2. The Department has completed a Rail Alternatives Study that looked at the feasibility of, and issues involved with, reinstitution of rail service between Manchester and points south. The study was written as a first step to considering rail service to address the overall transportation system served by the highway.

3. The Department is in the process of completing the Ridership Study that looked at alternative modes of transportation. The information collected and evaluated in this study will serve in part as the justification for eliminating from further study various transportation mode options or combinations of options.

4. The Department has held eight Advisory Task Force meetings in the various towns along the corridor over the last six months. Carol Granfield and Alan Swan have served as Derry's Task Force members.

   The Department has also met with the Environmental Resource Agencies seven times. The last two Resource Agency meetings were held in Derry to provide the opportunity for the public to attend these meetings and hear first hand the issues that are important to these agencies.

   The Department has also met twice with the stakeholder Agencies as part of Senator Bob Smith's initiative to streamline the design and environmental permitting process. The intent of these meetings is to improve the study process by improving communication, providing for signoffs at major project milestones, and implementing a process by which disputes can be elevated to a Board of Directors for quick resolution. In doing so, the permitting process can be completed in a more timely manner.

   In addition, the Department has held a number of meetings with Town staff, Regional Planning Commission officials, and individual stakeholders to consider specific issues.

   Communications with Massachusetts is also underway and formal meetings with the MA Highway Department, the Merrimack Valley Planning Commission and the MBTA are anticipated to begin in mid-December.

5. The Department is moving forward to implement Intelligent Transportation Systems technology along the corridor. This would essentially involve variable message boards and perhaps highway advisory radios to improve communications with motorists to making driving the corridor better before, during and after construction.

   The Department is also working with the NH State Police and local safety related officials to improve upon Incident Management so that accidents can be addressed more efficiently to reduce congestion and delay to motorists. Both the ITS and improved Incident Management measures are being funded out of the I-93 project funding.

6. The Department is currently moving forward with developing park and ride lots at Exits 2, 3, and 5. It is hoped that these can be developed, constructed and be in service prior to beginning the I-93 highway widening. We are also working with the bus company to be sure that bus service is available when the park and ride lots are completed.

7. The Department is moving forward with two wetland mitigation projects in advance of the widening of I-93. The one site in Salem is scheduled to advertise for construction in January 2001 and the second site in Londonderry will advertise for construction in early 2002. Together these sites are expected to serve as the cornerstone of the Department's effort to address impacts to wetlands resulting from the widening. These early efforts are intended to speed up the permitting process.

Jeff then introduced Howard Muise to talk about the Ridership Study used to evaluate the merits of other mode options.

RIDERSHIP STUDY

Howard Muise:

As part of trying to improve the segment of I-93 from Salem to Manchester, we have conducted a Ridership Study to consider mode options such as bus service, rail service and the use of high occupancy vehicles (HOV) lanes, and see how these mode options alone or in combination with each other or with various widening schemes might address the transportation needs of the I-93 corridor.

To do this, a modeling technique based on census journey-to-work data and travel time and costs, has been used to estimate the number of potential riders that might use a particular mode of travel.

There were essentially eight (8) mode options (three rail options, two bus options and three highway options) investigated. The mode options were tested and to some degree refined. As part of the early testing, a fourth rail option, providing service between Manchester and Boston via the Lawrence Station utilizing the I-93 corridor was dropped as it did not provide any appreciable difference in ridership from what was being estimated for another rail option (the East Rail option). Early testing also ruled out evaluating the HOV option of having an HOV lane in NH only. The early testing showed that to have any chance of success, HOV lanes would need to extend into Massachusetts to the MA 128 / I-93-interchange area.

After reasonable individual mode options were developed, they were then tested using ten (10) mode combinations. The mode combinations were set up to see how the mode options would affect each other and various highway layouts including:

- No-Build
- Widening I-93 with one general use lane NB & SB (total 6 lanes)
- Widening I-93 with two general use lanes NB & SB (total 8 lanes)

Since the development of the data based on the 10 mode combinations, three more mode combinations (requested at some of the project meetings) were added to the original ten and tested.

Lastly, the ridership data generated has been looked at in terms of reasonableness based on what has happen elsewhere for commuter services. The methodology and the results appear to be reasonable.

The conclusions based on the ridership study data are as follows:

1) The most significant finding of the study was that bus service, rail service and the use of HOV lanes either alone or in combination with each other, do not provide enough relief in terms of

congestion to eliminate the need to widen the highway if acceptable levels of service are to be achieved over the next 20-years.

The mode options will help alleviate the length of time over which congestion occurs. That is the time-period of congestion might be reduced from 3+ hours in the morning and evening rush hours to something less, but the peak hour of congestion will remain. Under many of the mode combinations tested, the 3+ hour period of congestion will remain.

2) The more the highway is widened, the less incentive you provide to encourage people to use rail service, bus service, or HOV lanes. These mode options carry more riders when the highway is congested.

3) With regard to rail, the Enhanced Rail option that provides service down I-93 from Exit 5 (or the Manchester Airport) to the Woburn Transportation Center in Massachusetts generates the highest level of ridership and diversion of traffic from I-93. The East Rail Corridor option generates 1/3 to ½ the ridership as the Enhance Rail to Woburn. The West Rail corridor, connecting Manchester to Nashua to Lowell, Massachusetts is not effective in addressing the needs served by I-93.

4) With regards to the HOV options relative to ridership, for an HOV lane to have any success it must extend well into Massachusetts.

However, even under that scenario, the HOV option only generates enough ridership in the HOV lane south of Exit 1 to be considered successful. North of Exit 1 the HOV ridership generated does not meet the minimum threshold in the peak hour to warrant construction of an HOV lane.

5) With regards to bus service, the two bus options (Enhanced Bus and Expanded Bus) when combined together with an HOV lane, generate almost as much ridership as the I-93 Enhanced Rail option which carries passengers down the I-93 corridor to the Woburn Transportation Center. For bus options to be most effective, they need to travel in an HOV lane or bus-only lane.

6) With regards to widening the highway, with or without transit service, the highway south of Exit 1 should be widened to 5 lanes in each direction to provide for an acceptable level of service within the 2020 time frame under consideration. Between Exit 1 and Exit 3, the highway should be widened to 4 lanes in each direction. North of Exit 3 the highway should be widened to at least 3 lanes in each direction.

In addition to the results provided by the Ridership Study several other issues need to be considered. They include:

1) The Ridership Study essentially considers commuter traffic expected during the morning and afternoon peak hours. It does not take into consideration weekend or holiday tourist traffic. It should be recognized that tourist and holiday traffic needs will not be addressed by the alternative modes of travel.

2) The Ridership Study does not address or account for the serious safety deficiencies associated with the highway, and how safety is further compromised by the high volumes of traffic utilizing a corridor with insufficient capacity.

3) With regards to rail options, the Enhanced Rail option requires significant investment on the part of Massachusetts to bring such an option to fruition. On the other hand, the I-93 Enhanced Rail option has real potential for Massachusetts' riders and the I-93 corridor in Massachusetts. This potential has not been studied as part of the NH study of I-93, but will be looked at as part of an I-93 study underway by the Merrimack Valley Planning Commission in Massachusetts. NH and MA will need to coordinate their studies.

4) With regards to the HOV option, this option requires a significant investment by Massachusetts as well. In addition, Massachusetts would need to consider the ridership anticipated in an HOV lane to ensure that such a lane does not carry too many HOV's and overwhelm the lane.

   Also, an HOV lane in NH raises operating issues relative to how traffic entering and exiting the HOV lane operates with slower traffic in the general use lanes.

5) With regard to bus service, the ridership study does not account for the number of busses required to carry the ridership and does not account for the lack available docking space at South Station in Boston. The practicality of so much bus service could be a problem. Currently there are no plans by Massachusetts to expand the South Station facility.

6) With regard to widening options, to accommodate traffic during construction, two-lanes must be available at all times. Consequently, if the highway were to be widened by one lane only, some additional temporary widening maybe required and in effect a four-lane foot print would result.

   In addition, to address safety issues, traffic management lanes may be required to facilitate the safe movement of traffic entering and exiting the highway. For instance, south of Exit 1 a Northbound collector-distributor section of highway maybe required to allow for the safe movement of traffic wishing to get on to the highway from the Salem Rest Area and those wishing to get off at Exit 1.

   Between Exits 4 and 5 traffic management lanes may also be required to accommodate Exit 4-A, a proposed interchange currently under study by the Towns of Derry and Londonderry.

Based on the Ridership Study and preliminary engineering evaluations the following alternatives are recommended for further study:

1) The No-Build alternative which essentially serves as a basis for purposes of comparison with the Build alternatives.

2) Transportation Systems Management (TSM) measures which are minor improvements that can be accomplished within the existing ROW at minimal expense. Such measures generally do not address the project purpose and need, but they need to be considered and potentially constructed if a full build alternative cannot be approved.

3) Widening I-93 to 4-lanes in each direction south of Exit 3 and 3-lanes in each direction north of Exit 3. In addition, this alternative would include constructing or expanding park and ride lots at Exits 2,3,4, and 5 and facilitating bus service to Boston and industrial centers in northern Massachusetts, as well as providing room for and as practical constructing, sub-grade for transit service with in the highway corridor

4) Widening I-93 to be 4-lanes in each direction the entire length of the corridor, in addition to the same park and ride lot construction, bus service enhancements, and provision for future transit service as noted with the previous widening alternative.

5) Widening I-93 to 3-lanes in each direction for the entire length of the corridor, with the amenities previously proposed with the other widening schemes.

6) Transportation Demand Management (TDM) measures which involve little or no construction to try and reduce the demand on the roadway: for example, employer based measures involving incentives and disincentives to encourage people to not drive alone, drive during off hours, telecommute, etc.

   TDM measures involving bus service will be considered.

   TDM measures involving rail service and involving HOV lanes, congestion management toll lanes, and reversible lanes will be addressed in the Rationale Report and recommended to not be carried forward for further study. These measures do not result in enough diversion to influence the need to widen the highway and result in major additional expenditures for construction and long term maintenance. In addition, these measures also require substantial investment by the State of Massachusetts.

PLAN PRESENTATION

Tony Grande:

General: When we first presented concepts to widen the highway and reconstruct the interchanges, the layouts were shown using tissue overlays and it was difficult to understand the plans. We are showing the concepts in a CADD format at two scales: 1”=400 feet for the mainline and the rail alternative, and 1”=200 feet for the interchange areas.

I-93 Mainline Corridor

The typical section that was used for all these layouts consists of a 4-lane highway in each direction, with provisions for the fourth lane in each direction to be an HOV lane. In addition, the layouts include provisions for a rail line in the highway corridor, the width of which varies between approximately 60 feet to 90 feet depending the type of facility that needs to constructed through an area.

There is essentially one mainline from the State line to Exit 1 with most of the widening occurring to the west to avoid impacts to Policy Brook. A collector-distributor road adjacent to the NB barrel will be developed to accommodate traffic trying to get in and out of the rest area and off at Exit 1. The rail line is located along the west side of I-93.

Between Exit 1 and Exit 2, three options were developed to assess design variations and impacts through the area surrounded by Prime wetlands. The first option holds the existing outside edge of the NB pavement as the inside edge of the proposed widening with all widening to accommodate the highway elements occurring to the east. The rail line would be essentially located where the existing NB pavement is today. This option would result in no impacts to Porcupine Brook. However, this option would impact Prime wetlands along the east side of I-93, as well as several residences and businesses.

The second option would utilize the existing NB pavement as part of the new highway layout and widen the highway to the east to accommodate the four lanes. The future rail line would be accommodated on structure (to minimize impacts to Porcupine Brook) in the median. This concept substantially reduces the impacts to the Prime wetlands, residences and business along the east side of I-93. The concept also reduces the amount of roadwork and bridgework that would be required under option 1.

A third option would entail having the rail line located not in the median, but instead be located along the west side of the SB barrel similar to that proposed south of Exit 1. The line would remain outside the SB barrel through Exit 2 until north of the Brookdale Bridge overpass because of geometric difficulty in trying to cross the rail line back into the median further south.

North of Exit 2 the widening of I-93 involves shifts to the outside and the median side depending on the location of environmental resources and developed properties and the need to minimize impacts.

In the vicinity of Exit 5, three alignments for the rail corridor have been considered. The first alignment retains the rail line in the median and crosses over NH 28 at Exit 5 before swinging westerly under I-93 SB barrel and connecting to the existing abandoned rail line. This alignment would require sharp curvature as the rail passes under the highway, limiting the train speed to 25mph or less.

The other two alignments provide 50 to 60 mph geometry for the rail. The southerly alignment leaves the median south of Exit 5 and crosses NH 28 near Perkins Road before connecting back into the abandoned rail line. The northerly alignment crosses over NH 28 at Exit 5 and then swings westerly on new location behind the Coca-Cola facility before connecting back into the abandoned rail corridor.

North of Exit 5, the highway widening would utilize much of the Bodwell Road / I-93 project footprint currently under construction.

Interchange Concepts

Exit 1

At Exit 1, two concepts will be carried forward for further evaluation. The first will be an upgrade of the existing interchange, retaining the same geometry as exists today. To allow for the maintenance of traffic during construction, this option will require temporary widenings, which may impact the Prime wetland areas adjacent to the interchange ramps.
The second concept will be to reconstruct the interchange to improve the SB off-ramp geometry in keeping with modern design standards. This will require permanent impacts to Prime wetlands not impacted by the first concept.

Exit 2

At Exit 2, the proposed northbound ramps maintain the same basic diamond configuration that exists today. On the SB side of the interchange there are two concepts to eliminate the problematic weave that exists today. The first is similar to the SB layout involving diamond type ramps with a signal located at their intersection with Pelham Road. The second concept would involve developing free-flow ramps for the EB and WB traffic on Pelham Road to travel SB on I-93 via a collector-distributor ramp before merging on I-93 SB. For this second concept the SB off-ramp would shift out around the SB on-ramp and intersect Pelham Road at a signalized intersection opposite Keewaydin Drive. The full diamond type configuration of the first concept would require 5 signals along the affected section of Pelham Road, while the loop-ramp configuration of the second concept would require 4 signals. The full diamond type design would have fewer impacts because of the tighter design layout involved. Both of these concepts will be carried forward for further evaluation. A park and ride facility is proposed in the southeast quadrant of the interchange area, with a connection to South Policy Road for access.

Exit 3

At Exit 3, the I-93 NB barrel will be shifted westerly to provide for NB ramp improvements, while minimizing impacts to potentially environmentally sensitive resources to the east.
The Exit 3 area, has a number of interchange configuration options that can be best understood by looking at the three major components of the interchange area and how they are connected to I-93. They include the NH 111 roadway, the SB ramps, and the NB ramps.
For NH111, it will be reconstructed to provide for two through-lanes in each direction with turning lanes at the intersection areas, as necessary through the interchange area. The new NH 111 will generally follow the existing NH 111 alignment east of the SB ramps, however to the west of the ramps, three concepts were developed as follows:

- The first option involves a continuation of the upgrade reconstruction of existing NH 111 on existing alignment. This would have substantial impacts to properties on both sides of NH 111 west of I-93 SB. The access to some of the abutting properties would be eliminated or reduced to right turns only because of a median island necessary as part of the NH 111 reconstruction. This option is not proposed to be carried forward due to the substantial impacts associated with this layout.

- The second concept involves a shift of the NH 111 alignment northerly approximately 400 feet, which would reduce the impacts to properties along the south side of a NH111 adjacent to Cobbetts Pond. The shift would increase the impacts to some of the properties on the west side of NH 111 and extend the work along NH 111 westerly beyond the NH 111 intersection with Wall Street. This concept would reconfigure the bypassed section of existing NH111 into a frontage road. This new frontage road would dead-end near the new SB on-ramps to the east and would reconnect to the new section of NH 111 opposite Wall Street to create a signalized 4-way intersection. (It should be noted that this layout for NH111 is the same layout for NH111 that was presented as part of the 1995 Windham-Salem project.) This northerly shift will be carried forward for further evaluation in the DEIS.

- The third concept for NH 111 is a compromise of sorts between the upgrade concept 1 and the 400-foot northerly shift for concept 2. Concept 3 reduces the amount of the northerly shift away from NH 111 and connects the relocated portion of NH 111 to existing NH 111 sooner. A portion of existing NH 111 would still be retained as a frontage road to provide access to properties to the south along Cobbetts Pond, but the frontage road would be

somewhat shorter than proposed with concept 2. This concept will be carried forward for further evaluation in the DEIS.

The southbound ramps involve two interchange configuration concepts, which include:

- A standard diamond ramp layout for the SB off and on-ramps with a signal at the intersection of the ramps and NH111.

- The second concept involves free-flow ramp layouts for traffic heading eastbound and westbound on NH 111 that wants to travel south on I-93. The SB off-ramp would intersect NH 111 at a new signalized intersection. The diamond type ramps would have fewer impacts than the loop concept because of the tighter design layout involved. Both of these concepts will be carried forward for further evaluation.

The northbound ramps basically involve three different configurations, which include:

- A 1995 ramp layout (previous Windham-Salem NH 111 study project) that includes a flyover two-lane ramp design for the I-93NB to NH 111 WB movement. This ramp configuration requires three bridges and a long merge area to the west for the ramp traffic and the NH 111 WB traffic to merge from four lanes WB to the existing one lane WB in the vicinity of the Wall Street intersection. This interchange layout would basically retain the existing I-93NB off-ramp / NH 111 intersection in close proximity (400 ft between intersections) with the existing NH 111A signalized intersection. This layout is proposed to not be carried forward for further evaluation due to the greater impacts and costs associated with this design.

- A second concept would connect the NB off-ramp with NH 111 at a signalized intersection approximately 1100 feet from the NH 111A intersection. The ramp would operate with double-left and right-turn lanes. The NB on-ramps from NH 111 would include a free flow loop ramp for EB NH 111 traffic and a free-flow diamond slip ramp for WB NH 111 traffic. This concept will be carried forward for further evaluation in the DEIS.

- A third concept would utilize the same NB off-ramp configuration as for concept 2, but the free-flow movement for the NB on-ramp would access I-93 via a signalized on-ramp, similar to the NB on-ramp layout today. This option will be carried forward for further evaluation in the DEIS.

Exit 4

Two concepts were developed for Exit 4. Both options retain the same general ramp configuration as the existing interchange layout. The concepts include a westerly I-93 widening concept and an easterly I-93 widening concept as related to the I-93 mainline.

- The easterly widening concept would hold the existing west edge of the SB mainline barrel and widen I-93 easterly to minimize the reconstruction of the existing SB ramps and eliminate the substantial amount of ledge / rock excavation that would be necessary with a westerly widening concept. The existing NH 102 roadway would be widened and the NH 102 bridge over I-93 would be replaced with a wider and longer structure to accommodate the need for additional lanes along NH 102 and the need to span over the widened section (pavement) of I-93 and the transit corridor in the median under the NH 102 bridge. This concept will impact the wetland areas adjacent to the

sewerage treatment plant to the south of Exit 4 and Wheeler Pond to the north. Retaining walls will be necessary to reduce or eliminate these impacts. This concept will be carried forward for further evaluation in the DEIS.

- The westerly widening concept would hold the east edge of the existing NB barrel with all widening occurring to the west side of I-93. This concept would require the WB NH 102 to I-93 SB ramp and the I-93 SB off-ramp to be reconstructed. NH 102 roadway would be realigned to the south of existing NH 102 allowing the existing bridge and approaches to maintain traffic while a new wider and longer NH 102 bridge and approaches are constructed. This option would reduce or eliminate impacts to the wetland areas near the sewerage treatment plant and Wheeler Pond along the east side of I-93 and reduce the need for the construction of retaining walls. However, this concept would require extensive ledge removal to accommodate the reconstruction of the SB ramps. This option will be carried forward for further evaluation in the DEIS.

The existing park and ride / bus service could be expanded to the north and serve as a train station in the future when rail service is implemented.

Exit 5

At Exit 5, three interchange concepts were developed. For all three concepts the diamond type ramp design for the SB on and off-ramps are identical. The NB diamond type ramp layouts for concept 1 and concept 2 are the same. Each of these three concepts will be carried forward for more detailed evaluation in the DEIS.

- For the concept 1 interchange configuration, NH 28 on the east side of Exit 5 is realigned to replace the existing reverse curves with a simple curve. NH 28 will be widened to 6-lanes through the interchange and transitioned down to a 5-lane section through the Liberty Drive intersection before transitioning back down to a two-lane section approximately 1000 feet south of Liberty Drive. This realignment reduces potential impacts to properties along the east side of NH 28 between Auburn Road and the relocated Liberty Road intersection with NH 28. This concept would substantially impact properties located on the west side of NH 28 along the inside of the relocated curve. To the west of the Exit 5 interchange, the 6-lanes in the interchange area will be transitioned to 5-lanes through Perkins Road and then transitioned to the existing NH 28 2-lane section. Perkins Road is realigned approximately 200' to the west to align with the entrance to the transfer station driveway on NH 28.

- For the concept 2 interchange layout, NH 28 east of I-93 would generally retain the existing alignment along NH 28. This concept utilizes the same ramp improvements identified under concept 1. This concept reduces impacts to the properties along the west side of NH 28 along the inside of the curve, however properties along the east side of NH 28 in the vicinity of Liberty Road and Auburn Road intersections would be impacted by the split widening along NH 28.

- A third interchange concept for Exit 5 would again retain the SB ramp configurations and the NH 28 alignment as in concept 2, but the NB ramps would be relocated to the south of the existing ramps and intersect along NH 28 further to the east. This design would realign the NB ramps to one major intersection opposite the recently constructed Liberty Drive intersection. This concept would provide additional separation from the NH 28 / SB ramps and direct access to an industrial area being developed off Liberty Road. This concept

would impact some wetlands southeast of the interchange, but possibly reduce impacts to wetlands in the NE quadrant of the Exit 5 Interchange. This concept would extend property impacts along NH 28 frontage to the south.

SCHEDULE

Jeff Brillhart presented the project schedule noting that the schedule has remained fairly constant over the past eight months.

- Complete Rationale Report – mid-January 2001
- Have detailed plans of widening schemes – March / April 2001
- Complete Draft EIS – November 2001
- Public Hearing – January 2002
- Final EIS – August 2002
- Begin Construction – March 2004

QUESTIONS AND COMMENTS

Comment: The use of shoulders as travel lanes is being done in Massachusetts. This would provide three lanes up to Manchester, have you considered this idea?

Bruce Tasker: We considered the section of I-93 from Exit 1 through Exit 3 northerly as a possibility for shoulder lanes, but after evaluating this section, we are not recommending implementation of this idea. The horizontal and vertical geometry of I-93 is difficult because of the topography. The interchanges in the southern section are close together. The existing shoulder is not wide enough, and would have to be widened along with a number of the bridges along I-93. Turnouts for vehicles that breakdown would also have to be constructed. The shoulder widening would create resource and property impacts, which would necessitate property acquisitions and resource permitting. For both safety concerns and implementation constraints, the Department does not propose to carry such a project forward.

Tony Grande: The shoulder lane in MA is just an interim solution. MA is re-evaluating the section of I-93 where it is used today.

Comment: What census data was used for the Ridership Study?

Howard Muise: The 1990 census data was used. The 2000 data census was not available, and the 2000 journey to work data won't be available for a couple years. We updated the 1990 data based on projections for population growth for NH and Towns along the study corridor. We also looked at the employment projections.

Comment: I was just thinking that with the new census data, what the impact of telecommuting on traffic patterns along the corridor might be.

Craig Buckley: I am amazed that we are not considering 4-lanes from the MA Line to Exit 4. Exit 4 provides access to the 4th largest community in NH with a estimated build out of 45,000 people. Many of these people commute south every day. Many of the Derry residents who would use Exit 4 in the afternoon actually get off at Exit 3 to avoid congestion. Reducing the number of lanes from four to three lanes at Exit 3 does not appear to make good planning sense.

Jeff Brillhart: Looking at just traffic volumes and the LOS criteria used for I-93, you need 4-lanes south of Exit 3 and three lanes to the north. There may be other reasons to expand I-93 to 4-lanes northerly. NB from Exit 3 there is a steep grade that perhaps would warrant a truck climbing lane northerly. With Exit 4a under consideration perhaps additional traffic management lanes are needed between Exits 4 and Exit 5. We need to consider all concerns (design, property, environmental, etc.) relating to what the footprint should be for I-93.

Comment: Should the Town write a letter, requesting the Department to reconsider the option for 4-lanes and not consider 3-lanes?

Jeff Brillhart: The Department has not dismissed the 4-lane option. That option will be evaluated in the DEIS. If the Council wants to write a letter, please send it to me.

Comment: NH 28 and Lowell Road traffic are very congested because people are trying to avoid congestion on I-93 and at the various interchanges. We should try and provide more lanes up to Exit 4 to alleviate the traffic congestion on the local roadways.

Jeff Brillhart: The traffic model verifies what you are talking about. As we add more lanes and reduce congestion on I-93, the traffic is diverted from the local roads to I-93.

George Sioris: Does the widening of NH 102, taper down from 4-lanes to 2-lanes at the Derry Town Line?

Jeff Brillhart: The concept shows NH 102 transitioning from the 6-lane section in the Exit 4 interchange area down to the existing 2-lane section near the Derry / Londonderry Town Line. We will be looking at this design in more detail in the next phase of the EIS process.

Comment: Last week at the Exit 4A meeting, the engineers noted that whatever option is chosen, for Exit 4A, that the State would construct the improvements required along I-93 to receive the Exit 4A improvement.

Jeff Brillhart: The Department was not at the Exit 4A meeting and it is not clear what comments were made on behalf of the State. If Exit 4A is coming, (and it appears it is), we need to coordinate the proposed designs for both

projects. Assuming Exit 4A is to be built prior to the widening of I-93, the Department would look to widen I-93 within the limits required for the Exit 4A project. In doing so, the area affected by the Exit 4A project would not have to be reconstructed twice.

David Nelson: The congestion on I-93 is significant today, and based on the Department's schedule it won't be fully completed for 10 more years. I really cannot imagine the level of frustration the motorists will have over the next ten years but I would ask, is there anything the Department can do to speed the project up? You noted that at the MA border 5-lanes are need to carry the traffic, what is MA going to do?

Jeff Brillhart: MA is currently undertaking a feasibility study of the existing 3-lane section of I-93 in Andover and Methuen. What the study will say, we are not sure. Right now, funding in MA is problematic, and it would appear that construction of any improvements in MA will not occur in the near future. What ever MA decides to build, NH would tie into. The Department's sense is that they will not build more than 4-lanes. But until that time and, if NH builds 4-lanes first, the NH section southbound would need to be transitioned down to the existing 3-lane section in MA. The northbound section would not be a problem to increase the 3-lane section in MA to 4-lanes in NH.

As far as the schedule goes, the Department recognizes the difficulties motorists and commuters face until the widening is complete. The design schedule is extremely aggressive and the construction schedule will be equally tight.

David Nelson: Ever since I-93 was widened to accommodate the Rockingham Mall the Exit 1 section of I-93 has been very problematic for traffic traveling NB. Four and sometimes five lanes (motorists are creative during the rush hour in this area) of traffic are funneled down into 2-lanes. The traffic back up is severe. I think that if you were to reduce the pavement width in this area traffic would flow better, because the number of people trying to make lane changes to get ahead would be reduced. I am concerned that you will have the same condition if you add and drop lanes along the improved corridor. The best solution is to determine the number of lanes that works for the entire corridor and don't vary that number. This will reduce the turbulence in the traffic flow and eliminate the "get ahead of the other guy factor" associated with a lane drop. At Exit 1, heading NB, there are wide expanses of pavement that allow motorists too much latitude. Perhaps some type of barrier can be positioned such that motorists can choose the correct lane in a safe manner, and the transition will flow more smoothly.

Tony Grande: Where the traffic volumes are relatively high for both through and exiting traffic, we are looking at separating exiting traffic from the through-traffic by means of a collector –distributor (CD) highway section. With a CD, traffic management lanes are added to allow merging and diverging traffic to maneuver at generally lower speeds without affecting the flow of the through traffic. At Exit 1 NB, a CD is proposed that would begin south of the rest area and serve traffic exiting I-93 to the rest area and to

Rockingham Blvd as well as traffic entering the CD from the rest area. The traffic entering from the rest area would weave or merge with the traffic exiting to Rockingham Blvd. before merging with the NB through traffic. The layout will be coordinated with MA highway to provide for a safe transition.

Jeff Brillhart: The Department has looked at the existing NB lane drop situation to see what might be done to improve safety and limit congestion. There is no easy solution here. I believe the Department recently added more signing to help motorists use the proper lane.

Marty Kennedy: Relative to traffic operation in the future, if we add one or two lanes in NH to meet the I-93 SB traffic demand and we don't provide a smooth transition, the traffic will flow very well until you reach the bottleneck, which in this case will occur at the MA line. The slow moving or stopped queue will extend northerly from this bottleneck and congest the improved sections at Exit 1 and Exit 2 in NH. As David Nelson noted, the key point is making sure that the bottleneck points are addressed. Today the primary problem on I-93 NB at Exit 1 is due to the fact that the existing 2-lane section is operating over capacity (for a 3 hour peak period) and not because of the merge of 4-lanes down to 2-lanes. If today, we were to widen I-93 from 2-lanes to 3-lanes NB, this section would remain heavily congested and would continue to operate at capacity during the peak hour. Backups would occur, but over a shortened period of time. As traffic continues to increase as we approach to the design year 2020, the bottleneck and operating conditions would be similar to what is occurring today.

Roberta Robie: The Department's traffic volumes and projections at Exit 4 are not accurate because everyone is getting off at Exit 3 to get to Derry. I agree with Craig Buckley that we need to carry the fourth lane all the way to Derry. I contacted Senator Smith's office on the I-93 widening, testified in Concord on the subject and sent the Senator a packet of information about the I-93 widening. Since then the Senator has become very supportive of the project. If the Senator is successful on expediting the permitting process as talked about, will the project be expedited?

Jeff Brillhart: The current project schedule assumes that the Senator's initiative will encourage all stakeholders to collectively work toward expediting this project. This project is the highest priority for the Department.

Peter DeSantis: (Granite State Wheelmen) I am asking for the inclusion of a bike lane for the entire length of the corridor. A Bureau of Transportation household survey dated Oct. 2000, indicates that 41 million Americans (20%) have used a bicycle in the last 30 days. The bicycle is the second most preferred mode of transportation next to the automobile. Of those 41 million bicycle users, 22% of them used the bike 10 or more days for the last 30 days measured in the survey. The availability of bike and walking paths are extremely important to the quality of life, according to this publication.

Jeff Brillhart: The Department has received input from bicyclists at previous meetings. I have asked our Planning Bureau to take a look at the corridor from a bike/pedestrian perspective.

Comment: When the Department looked at population growth as part of its traffic and ridership projections, did it consider the rapid expansion of the Manchester Airport? A newspaper report noted that most of the people in the Manchester Airport terminal were MA people. Do you include those people in your growth projections in addition to your normal population projections? It seems that the airport is pulling more people out of Massachusetts and Merrimack Valley area, which is a good argument for more lanes north of Exit 3.

Jeff Brillhart: Over the design period proposed, I think that the model does include those projections. The Department is revisiting the traffic model to confirm that this rapid airport expansion is accounted for over the long term. Models do tend to balance out over the long term, accounting for high and low growth rates. The model is conservative; that is the long-term growth as projected by the model is actually less than the historical data available for the I-93 corridor.

Comment: Could you go over the funding for this project, assuming construction begins in 4 years and is completed in 2010?

Jeff Brillhart: The funds are 80% federal and 20 % state. I feel the project will be funded as the Department's highest priority. Senator Smith's influence may help solidify the available funding.

Comment: My concern is that Senator Smith may not be there for this entire process. As the economy begins to slow, will that affect the available funding from the federal government, which may in turn affect the construction schedule?

Butch Waidelich: The federal funding comes from the gas tax. The trust fund has more receipts than ever before. It would appear that funds will be available, however, a new highway bill will be coming out in 2003, and the amount of funds that go to each state could change if the current formula changes.

Comment: The NH111 section at Exit 3 has some very significant modifications with a bypass shown around some sections of Windham. Why wouldn't 4A be considered as part of this project in the same way? Is it because its origin is from a separate private project?

Jeff Brillhart: The layouts shown for NH111 at Exit 3 in Windham are not really bypasses but are options for terminating NH 111 and allowing the interchange to function properly. We could do something similar with NH102 at Exit 4, but the impacts would be significant. The 4A interchange is a separate entity, in addition to Exit 4 interchange improvements. The magnitude of the Exit 4A project is much greater in comparison to what we are talking about for the NH 111 transition to the west at Exit 3.

Comment: The main purpose for Exit 4A is to provide an option for getting around the congested section in Derry. We in the Town Council are interested in coordinating the two projects, and we are asking the Department to consider incorporating Exit 4A into the I-93 work. The I-93 modeling projections show that traffic is using Exit 3 to avoid congestion at Exit 4. With 4A, another alternative would be available for those vehicles that use Exit 3, thereby reducing some of the traffic on local roads and demand at Exit 4. The construction of Exit 4A and the additional traffic on I-93 would suggest the need to extend the 4th lane north to Exit 4A.

Comment: A lot of motorists getting off at Exit 3, using NH 28 are then using Kiray Road a local road, which is posted at 35mph. They travel this road at 50 and 55mph to Chester and Hampstead Road. If the interchange were constructed at 4A, this traffic would stay on I-93 and use Exit 4A.

Paul Doolittle: If the job of the state's planners is to relieve the traffic congestion within the Towns affected by I-93, and if Exit 4A is more expensive than the Towns can afford, the Department needs to consider what the impact will be if they widen I-93. Widening I-93 to 3 or 4-lanes will induce growth in Derry; growth that will wipe out Derry's downtown. The Department needs to consider what the consequences of widening the highway are to Derry. On another point, when the Department talks about the traffic projections for the year 2020, I would like extend that frame of reference to planning consequences and public health. Approximently 100 years ago we divested ourselves of a very fine rail system and invested in the emerging automobile. We chose to not subsidize rail, but instead, to subsidize the auto by building highways. As a result, we kill more people (40,000) every year than we did in the entire Vietnam War. That cost is not in this analysis. Global warming is not in this analysis. By using short-range analysis to get people to their destinations quicker, we induce people to come to NH and thus induce development, which ultimately results in impacts to the environment and more pollution. This type of highway infrastructure will become obsolete when international economic and political pressures force us to give up the automobile. In the short-term 20-year analysis the high-speed rail doesn't work. It doesn't make sense economically. However, over the long term we are destroying our quality of life and sense of community. We don't live locally or shop locally and we are not creating a sense of community that creates a sense of safety. These are all the unexamined consequences of the subsidization of this single form of transportation. Improving I-93 makes sense within the short time frame of 20 years, but long term, this is collective insanity. I ask the Department to rexamine it's projections on what the transportation needs are. The transportation of goods and people need to be examined from a more global perspective. People need to get to work in a healthy, sustainable way so that future generations have air to breathe and the urban sprawl does not destroy the quality of life. Instituting rail as a long range investment provides for commuting to work that takes into account the quality of life in NH. By widening the highway, the Department is forcing the development of Hampstead, Chester, and Auburn and making Derry the transportation corridor for that development. The Department

says the improvements to I-93 are needed because the car count studies say so, but, that is less than half the story.

Jeff Brillhart: This is a complicated subject. Cars are here to stay. They are too convenient, too fun, and provide too much mobility to think they will go away. That is not to say that we will continue to widen highways forever. The Department foresees that widening highways has it's limits and other models will need to come into play if we are going to maintain the mobility to which we have become accustomed. Widening I-93 is one component of the overall solution. Expanded and enhanced bus service will be required. Eventually train service will be necessary. All these modes will be part of the transportation future of NH. As far as quality of life and the issue of sprawl, these are largely related to land use, for which NH needs to do a better job. All modes of transportation will make NH more accessible and thus more susceptible to development. The adverse affects of this development need to be addressed through better land use policies and regulations. Good transportation need not result in poor land use.

Comment: What is the cost of the highway and what is the cost of adding rail in the I-93 corridor?

Dave Wilcock: The cost of rail from Manchester down the I-93 corridor and connecting to the Lawrence Station is approximately $177 million. This cost includes stations, track, trains, etc. The annual cost is approximately $19 million. The cost for the East Rail corridor option is $100 to $300 million depending upon how the train gets around or under the Manchester airport runway, respectively. That corridor may be difficult to use because of residence and business infrastructure that has been constructed over the past 50 years.

Bruce Tasker: The estimated highway cost to widen I-93 to 4-lanes for the 18-miles is approximately $250 million.

Rep. Letourneau: I have some concerns relative to increased noise for residents adjacent to I-93. What are the requirements to obtain sound proofing?

Jeff Brillhart: Existing noise levels at various locations along the corridor need to be measured and then a sound model based on ground readings and the traffic projections for the widened corridor needs to be developed. Using this data and the models, the need for sound barriers will be evaluated. Whether barriers are constructed is dependent on a number of criteria: the noise has to exceed 65 decibels, or increase 15 decibels or more over existing noise level; the cost/benefit ratio of building a noise barrier must be less than $25,000 to $30,000 per home; the barrier must be constructible.

Rep. Letourneau: Is there a program to sound proof homes, similar to the airport?

Jeff Brillhart: The Department typically assesses abatement needs based on the noise at ground level outside the home. As such the abatement measures would mitigate for noise based on addressing noise in this area. Sound proofing homes in not something the Department has proposed before.

Roberta Robie: Along the section under consideration, I-93 is only two lanes in each direction. North and south of this section I-93 is three or more lanes wide. The traffic is already here and will continue to increase regardless of what we do. This 18-mile section acts as an hourglass bottleneck. We need to widen the highway so it will flow smoothly.

Comment: Will the next level of documentation show where a bikeway will go?

Jeff Brillhart: The Department's Bureau of Planning, is evaluating bicycle needs relative to I-93. Future plans for interchange areas will be developed with bicyclist's and pedestrian's needs in mind.

Comment: How responsive is MA to what NH is doing to meet the traffic demands along I-93.

Jeff Brillhart: We need to work with MA. We are in the process of setting up coordination meetings.

Comment: What is the Department's projection in terms of the highway's level of service between now and 2010? How bad is it going to get before it's completed? What is your definition of success in the year 2020?

Marty Kennedy: We measure how a highway operates in terms of levels of service. Level of service (LOS) is a qualitative measure to describe the operating conditions along a highway. The LOS is described by letter designations A through F, which identify how well the facility is operating, A being the best operating condition and F the worst condition, or failure. LOS E is the roadway's physical capacity. The term design hour is the hour for which a roadway is designed. The standard traffic volume for determining the number of lanes required to carry traffic on a highway is the volume that occurs during the 30th highest hour. Among all the hours in a year, the 30^{th} highest hour is the hour with the 30^{th} highest traffic volume. The volume reflects a Design Hourly Volume that is reasonable to meet most operating conditions of a highway without designing for the worst case condition. To determine the number of lanes that are needed along the I-93, 2020 design criteria have been established by the NHDOT; LOS C is desirable and a LOS D would be acceptable.

Based on these design criteria the following improvements are needed:

- A 10-lane section (5-lanes in each direction)south of I-93 Exit 1.
- An 8-lane (4-lanes in each direction) section between Exit 1 and Exit 3.
- A 6-lane (3-lanes in each direction)section between Exit 3 and I-293 to the north

The peak hour condition that occurs along I-93 today is really a 3+ hour peak period condition during which I-93 is at LOS E and F today. Overtime, until the highway is improved, this 3+ hour peak period will grow still longer.

Comment: So what will it be like in 2009 before construction is complete ?

Jeff Brillhart: The conditions today are LOS E and F south of Exit 4, and the conditions in 2009 will be worse as the peak period of congestion continues to grow beyond the three hours.

Roberta Robie: Given that Exit 4A will draw traffic that currently utilizes Exit 3, shouldn't the highway be widened to four lanes up to Exit 4A?

Marty Kennedy: Our analysis does not assume Exit 4A is part of the improvements to the I-93 corridor. When NH 111 at Exit 3 is improved as part of the Windham-Salem project, which is included in our traffic model there will be improved mobility to NH 28 and more people will choose that route. If Exit 4A is constructed then there may be a need for additional lanes north of Exit 3.

Roberta Robie: So are you then planning for the additional lanes now?

Jeff Brillhart: It is a factor to be considered. We are coordinating our efforts so that Exit 4A and the I-93 widening do not have to be revisited.

Comment: The park and ride lot expansion shown at Exit 4 is in the vicinity of a protected area associated with a apple orchard. It may be difficult to impact this property because federal funds may have been used in conjunction with protecting that property.

Jeff Brillhart: This issue needs to be looked at in more detail. The idea has been that if the rail is constructed along the I-93 corridor, the park and ride lot would be expanded to serve as a future rail station. The Department does not think that this park and ride lot will be expanded for carpool and bus service because the new lots at the other Exits along I-93 will reduce demand at the Exit 4 park and ride lot.

Leigh Komornick: Why doesn't the Department use LOS C as the design criteria for I-93 given the fact that the traffic model is very conservative?

Jeff Brillhart: Everyone has different ideas as to what the criteria should be. The Department is trying to be reasonable and flexible, and trying to find a balance between addressing transportation needs and limiting property and resource impacts.

Leigh Komornick: Is four lanes all the way to Manchester one of the alternatives still under consideration?

Jeff Brillhart: This option will be carried forward along with the 3-lane option and the 3 and 4 lane option as noted earlier.

Lee Komornick: What is FHWA's role with respect to LOS?

Butch Waidelich: We use the same standards as Marty Kennedy mentioned; LOS C and LOS D. There are many constraints related to improving a highway, including cost. We cannot keep increasing pavement. We need to look at balancing all of the resources.

Lee Komornick: Who decides what the best use of Federal funds is? If you build 3 lanes now and have to build another lane 5 years from now, how does that serve the public interest?

Butch Waidelich: What we build will be a conscious decision. If out of the process three lanes is right for the corridor, then that is what we will live with. This is a decision making process.

Rep. Letourneau: The Commissioner, in the initial meetings that we had, indicated that we would be evaluating 4-lanes from the MA line to Manchester. By doing so we could get all the permits in place. Today the Department may only need to construct three lanes in some areas but, when needed, the 4th lane could be added relatively easily. Is that still the game plan?

Jeff Brillhart: That was the Commissioner's vision. We are working with the Resource Agencies. We are looking at 3-lanes, we are looking at 4-lanes, and we are looking at combinations of the two. The Commissioner felt before the study was fully underway that 4-lanes may be the answer or at least three lanes with the 4th lane graded-out in case it was needed to handle traffic during construction or at some future date. One of the other visions the Commissioner had is to look at preserving the ability to provide for future rail in the I-93 corridor. The process needs to play out, before we know what the selected alternative will be.